

Southeastern Soil & Environmental Associates, Inc.

P.O. Box 9321
Fayetteville, NC 28311-7696
Phone/Fax (910) 822-4540

July 3, 2000

Mr. Norman Wallace
8794 NC Hwy. 27 West
Lillington, N.C. 27546

893-7494

Re: Soil/site evaluation and drainage design, lot in existing subdivision, Harnett County, North Carolina

Dear Mr. Wallace,

A preliminary soils investigation and drainage design has been completed for the above referenced tract. The purpose of the investigation was to evaluate and identify the extent of soil areas that have the ability to be modified to support a subsurface waste disposal systems for proposed 3 bedroom homes. All ratings and determinations were made in accordance with "Laws and Rules for Sanitary Sewage Collection, Treatment, and Disposal, 15A NCAC 18A .1900".

Southeastern Soil and Environmental Associates, Inc. (SSEA) performed these soil evaluations during June, 2000. SSEA traversed the property and observed landforms (slope, drainage patterns, etc.) as well as soil conditions through the use of hand auger borings and compact constant head permeameter (CCHP) readings in formulating a drainage design for the proposed site. From these observations and readings, a drainage design is enclosed for submission to the Harnett County Health Department.

DISCUSSION OF SOILS

The soils in the proposed area were somewhat uniform in nature consisting of 120 or more inches of loamy sand/sandy loam (Group 1/2). The deeper borings revealed no confining layer within 10 feet of the soil surface. Loamy sand and sand (C) horizons were loose and very friable with no evidence of compaction. A typical long term acceptance rate (LTAR) for this soil type would range between 0.8 gpd/sq. ft. and 1.2 gpd/sq. ft. These soils appear to be similar to the Toisnot series.

DISCUSSION OF DRAINAGE/OUTLET

According to you, the site has existing drainage (ditch) and/or enough elevational fall to provide for a drainage outlet. While we can design a drainage system, it can only work if an adequate outlet exists. You must prove that a drainage outlet at least 36 inches deep exists (keeping a 1% grade).

The purpose of the additional drainage is to lower the water table to a depth of 30 or more inches.

HYDRAULIC CONDUCTIVITY

2 (CCHP) conductivity measurements were made in the proposed area in the C horizons. Values ranged from 47.44 cm/hr (18.60 in/hr) to 68 cm/hr (26.68 in/hr) in the C sand/loamy sand horizons. The lowest conductivity observed in the C horizon was 47.44 cm/hr (18.60 in/hr). Using a conservative approach, this lower rate (18.60 in/hr) was used in designing the drainage system.

DRAINAGE EQUATION

The Ellipse Equation was used to determine drain spacing (see attached). The method was developed by Dr. Bob Uebler in developing drainage systems for the Coastal Plain area. Based on the equation, assuming a desired 30 inch drawdown and 3.0 foot drain depth, drain spacing would need to equal 161 feet or less. The enclosed design was based on this spacing.

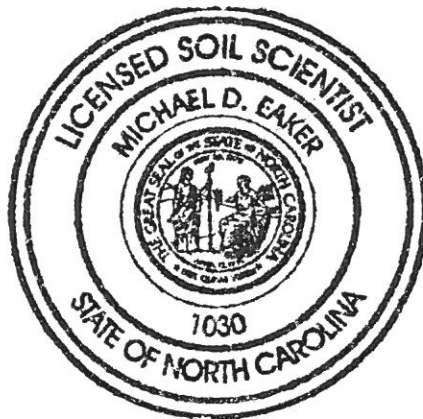
Based on this design, these soils appear to be capable of modification and reclassification for on-site waste disposal (conventional system). The design is based on the use of 4" fabric covered drain tile and the assumption that a drainage outlet exists. The drain tile does not include a gravel envelope.

This report, of course, does not guarantee, constitute or imply any approval, or permit, as needed by the client from the local health department. Such approval is dependent on their adoption of these recommendations and issuance of the appropriate permits. Southeastern Soil and Environmental Associates, Inc. is pleased to be of service in this matter. We look forward to assisting in additional site analysis needs you may have in the future. Please feel free to call with any questions.

Sincerely,

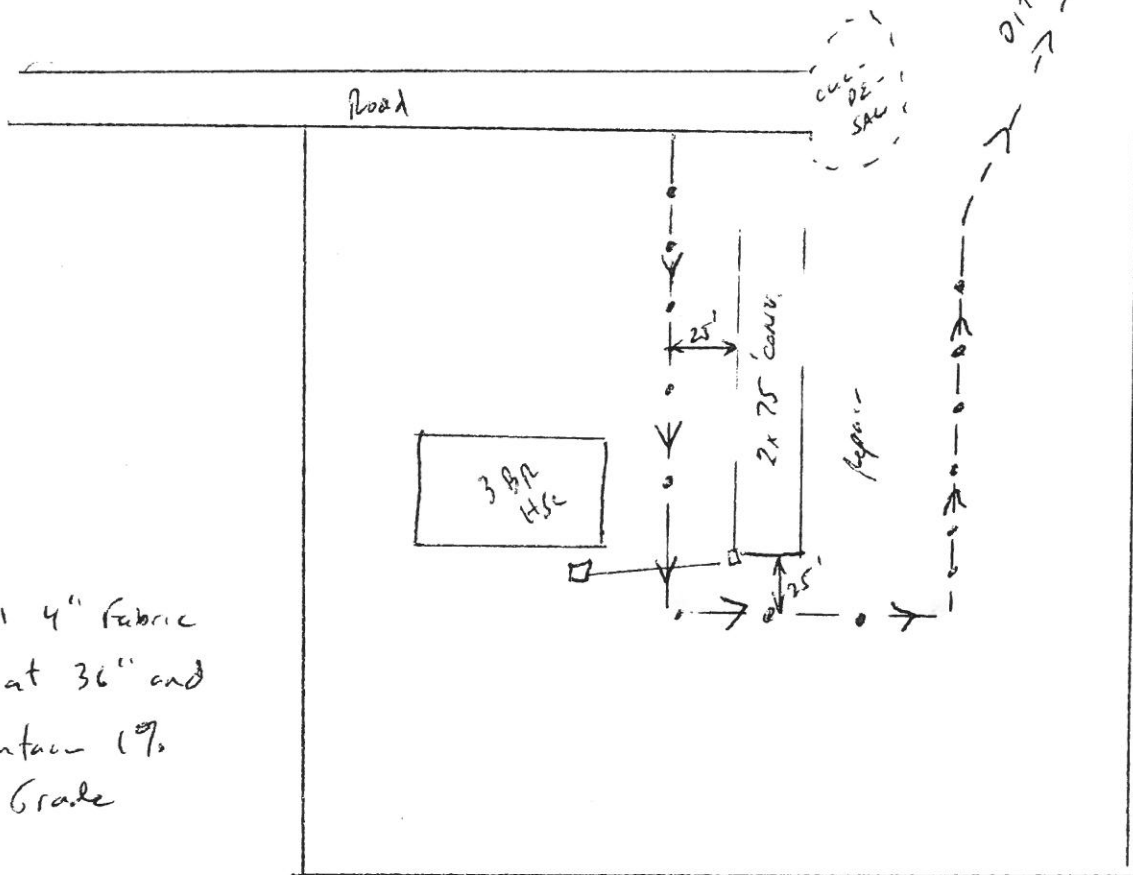
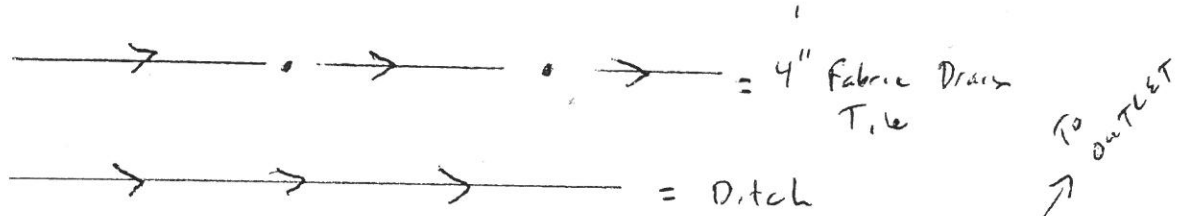


Mike Eaker
President



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* Install 4" Fabric
Tile at 36" and
maintain 1%
Grade